

REMARKS

Claims 1-28 are pending, with claims 1, 15 and 16 being independent. Claim 29 was cancelled by a previous preliminary amendment without waiver or prejudice. Claims 1, 15 and 16 are amended by this amendment. No new matter is added.

Applicant's responses to specific rejections are presented below following excerpted text of the Office action, which is presented in indented, bold, single-spaced, 9 point font.

Claim Objections

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Applicant respectfully disagrees. Applicant respectfully requests reconsideration and withdrawal of the objection to the title. Applicant submits that the title is indicative of the claimed subject matter. For example, independent claim 1 is directed towards a "computer implemented method for logically evaluating a Boolean expression used in a query statement." Applicant submits that the title, "Method and System For Query Optimization" is indicative of the subject matter of claims, as can be seen from the preamble of claim 1.

For at least this reason, Applicant respectfully requests reconsideration and withdrawal of the objection to the title.

Claim Rejection 35 USC § 112

7. Claim 15 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the Written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 15 recites a "computer-readable medium" however there's no definition of it found in the specification.

Applicant respectfully disagrees. Applicant submits that no definition of "computer-readable medium" is required in the specification because the term "computer-readable medium" would be readily understood by one skilled in the relevant art. "Patent documents are written for persons familiar with the relevant field; the patentee is not required to include in the specification information readily understood by practitioners, lest every patent be required to be written as a comprehensive tutorial and treatise for the generalist, instead of a concise statement for persons

in the field.” *Verve LLC v. Crane Cams Inc.*, 311 F.3d 1116, 65 USPQ2d 1051, 1053-54 (Fed. Cir. 2002).

Furthermore, Applicant submits that the specification conveys with reasonable clarity to one skilled in the relevant art that the Applicant was in possession of the subject matter claimed without needing to provide a definition for “computer-readable medium.” “Adequate written description means that, in the specification, the applicant must ‘convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the [claimed] invention.’ *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991).” *Hyatt v. Dudas*, 492 F.3d 1365, 83 USPQ2d 1373, 1376-77 (Fed. Cir. 2007). For example, see paragraph [0040] of the Applicant’s published application (U.S. Published Application No. 2007/0038597), which states:

“In one embodiment of the invention, the first computing device 901 can run a computer program product loaded into a memory of the first computing device to perform a method 400 for logically evaluating the Boolean expression 310 and create a reduced Boolean expression 320 that is used in the query statement instead. The computer program product includes various portions of computer program instructions that cause at least one processor of the first computing device 901 to execute corresponding steps and functions of the method 400.”

See Published Application, paragraph [0040]. Thus, at least from this exemplary paragraph, it would be clear to one skilled in the art that, as of the filing date, Applicant was in possession of the claimed invention.

For at least these reasons, Applicant respectfully requests reconsideration and withdrawal of the section 112, first paragraph rejection of claim 15.

Claim Rejections - 35 USC § 101

9. Claim 15 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims fail to place the invention squarely within one statutory class of invention. On page 22 and 24 of the instant specification, applicant has provided evidence that applicant intends a “medium” to include “digital data communication”. As such, the claim is drawn to a form of energy. Energy is not one of the four categories of invention and therefore this claim(s) is/are not statutory. Energy is not a series of steps or acts and thus is not a process. Energy is not a physical article or object and as such is not a machine or manufacture. Energy is not a combination of Substances and therefor not a composition of matter.

Applicant respectfully disagrees. The scope of the claims is defined by the language of the claims, not the language of the specification. Claim 15 recites “A computer program product

for logically evaluating a Boolean expression used in a query statement, the computer program product being tangibly embodied on a computer-readable medium” A dictionary definition of “tangible” is “capable of being touched; discernable by touch; material or substance.” Random House Webster’s Unabridged Dictionary (2001) p. 1941. Because the claim requires that the computer program product be tangibly embodied on a computer-readable medium, the claim cannot be properly interpreted to encompass a pure signal that is divorced from any structure. Rather, because the computer program product of claim 15 is tangibly embodied on a medium, the claim must fall within a class of statutory subject matter.

Furthermore, the MPEP states, with emphasis added, “(d)escriptive material can be characterized as either “functional descriptive material” or “nonfunctional descriptive material.” In this context, “functional descriptive material” consists of data structures and computer programs which impart functionality when employed as a computer component... Both types of “descriptive material” are nonstatutory when claimed as descriptive material per se, 33 F.3d at 1360, 31 USPQ2d at 1759. **When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized** ... (MPEP §2106.01) ... a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035... (MPEP §2106.01(I)).

For at least these reason, Applicant respectfully requests reconsideration and withdrawal of the § 101 rejection of claim 15.

10. Regarding claims 16-28, in particular claim 16, the claim recites a “processor” and “memory”. In the absence of any modifying disclosure of this limitation in the specification, the examiner interprets the term ‘processor’ as limited to hardware embodiments; and the term ‘program storage device’ as excluding printed paper, transmission media, signals, or any form of energy, such that the claim clearly falls within a statutory class of invention as required under the terms of 35 U.S.C. 101.

Applicant submits that claims 16-28 do not stand rejected under 35 U.S.C. § 101 and that claims 16-28 recite statutory subject matter without amendment. Furthermore, Applicant does

not acquiesce to the Examiner's interpretation of the terms "processor" and "program storage device" and submits that the terms are not necessarily limited as interpreted by the Examiner. The scope of the claims is defined by the language of the claims, not the language of the specification. Applicant submits that the language of the claims is statutory without the interpretation of the terms from the Examiner.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-28 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6439783 by Gennady Antoshenkov (hereafter Antoshenkov).

Claim 1:

Antoshenkov discloses the following claimed limitations:

"receiving the Boolean expressions;"[col. 8 line 9, a query may be a Boolean expression.

Accordingly, receiving the Boolean expressions (query)]

"decomposing the Boolean expression into the plurality of conditions;"[abstract, the query is converted to a Boolean tree in canonical form. Col. 8 lines 66-67, a Boolean tree which has been constructed from the following query: ((s1>21) and (s2=140000)) or not((s1<=30) or not(s2 >20000) or (s2/1000<>s1)) . Accordingly, decomposing (constructed) the Boolean expression (query) into the plurality of conditions (figure 4a and ((s1>21) and (s2=140000)) or not((s1<=30) or not(s2 >20000) or (s2/1000<>s1)))]

"for each condition of the plurality, extracting from the condition at least one condition value referring to the attribute, wherein the at least one condition value defines a value range of the condition;"[Col. 8 lines 66-67. Accordingly, for each condition of the plurality(((s1>21) and (s2=140000)) or not((s1<=30) or not(s2 >20000) or (s2/1000<>s1))), extracting from the condition at least one condition value referring to the attribute (s1, s2), wherein the at least one condition value defines a value range of the condition (>21, =14000, <=30, etc.)]

"inserting the at least one condition value in a condition value list in sorted order;" [col. 7 lines 2-5, the results of the evaluation are placed in the range vector. The rank vector is sorted by the range values, and each range is given a rank number. Accordingly, inserting (placed) the at least one condition value (range) in a condition value list (rank vector) in sorted order (sorted range values).]

"initializing a relationship vector for the at least one condition value; and"[figure 4b and figure 10]

"adjusting the relationship vectors for the at least one condition value and for each further condition value that is in the condition list and that is in the value range of the condition." [col. 7 lines 8-15. Accordingly, adjusting the relationship vectors (boolean tree is further optimized) for the at least one condition value (range) and for each further condition value (ranges) that is in the condition list (rank vector) and that is in the value range of the condition (range values)]

Applicant has amended independent claim 1 to obviate the rejection. As amended, independent claim 1 recites a computer implemented method for logically evaluating a Boolean expression used in a query statement that includes initializing a relationship vector for the at least one condition value, wherein each component in the relationship vector is a counter

and initializing the relationship vector comprises setting the counter for each of the components to an initial value and adjusting the relationship vectors for the at least one condition value and for each further condition value that is in the condition list and that is in the value range of the condition by adjusting the counters.

Applicant respectfully requests reconsideration and withdrawal of the rejection because Antoshenkov does not describe or render obvious these features, as recited in independent claim 1.

For at least these reasons and as discussed during the telephone interview, Applicant respectfully requests reconsideration and withdrawal of the § 102 rejection of independent claim 1 and its dependent claims 2-14.

Similarly to claim 1, independent claims 15 and 16 have been amended to recite a computer program product (claim 15) and a computer system (claim 16) that recite a processor that is configured to initialize a relationship vector for the at least one condition value, where each component in the relationship vector is a counter the processor sets the counter for each of the components to an initial value and adjust the relationship vectors for the at least one condition value and for each further condition value that is in the condition list and that is in the value range of the condition by adjusting the counters. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the § 102 rejection of independent claims 15 and 16 and claims 17-28, which depend from independent claim 16.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance. The Examiner is invited to telephone Applicant's attorney (202-470-6457) to facilitate prosecution of this application.

Enclosed are the fees for a Request for Continued Examination (RCE). If necessary, please charge any deficiencies or credit any overpayment to Deposit Account No. 50-3521, referencing Attorney Docket No. 2003P00256WOUS/0010-017001.

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